



KENYA ELECTRICITY GENERATING COMPANY PLC

KGN-HYD-021-2024

RFx: 5000014980

TENDER FOR REHABILITATION OF FIRE HYDRANT SYSTEMS IN EASTERN HYDRO POWER STATIONS AND STAFF CAMPS(RE-TENDER)

(YOUTH ENTERPRISES ONLY)

Date: 19th April 2024

ADDENDUM NO.1:

In accordance with the **TENDER FOR REHABILITATION OF FIRE HYDRANT SYSTEMS IN EASTERN HYDRO POWER STATIONS AND STAFF CAMPS**. KenGen hereby issues Addendum No.1

REVISED SUMMARIZED PRICE SCHEDULES/BILL OF QUANTITIES

SCHEDULE No 1. PRELIMINARY ITEMS.

Item	Item Description	Qty	Unit	Rate	Amount
A1	Mobilization and Demobilization The contractor shall allow for the provision of all necessary mobilization requirements for all the sites (Masinga, Hydro Plaza, Kamburu , Matendeni,Gitaru Central Office ,7forks Primary and Kiambere Staff camp) including temporary office structures,PPEs etc	Ls	Item		
Total Bill No1. carried to summary					

SCHEDULE No 2: 100M3 MASONRY TANKS

2.0 EXCAVATION AND EARTH WORKS.

Item	Item Description	Qty	Unit	Rate	Amount
2.1	Clear site of bushes, shrubs, grub the roots and dispose of 50m away.	60	M ²		
2.2	Excavate oversite to reduce levels not exceeding 1.5m deep starting from the existing ground level and remove to temporary spoil heap.	80	M ³		
2.3	Extra over excavation for excavating in rock (provision).	5	M ³		
2.4	Allow for keeping all the excavations free from foreign materials and general waters.	Ls	Item		
2.5	Provide and apply anti-termite solution preferably Gladiator or any other approved anti-termite solution to the general surfaces of excavations.	Ls	Item		
2.6	Provide , place and compact hardcore of approved quality 300mm thick to make up levels	25	M ³		
2.7	Provide and compact 50mm thick selected murrum blinding to the surfaces of hardcore.	10	M ³		
2.8	Provide and place 1000gauge polythene sheet to the surfaces of blinded hardcore.	60	M ²		
Sub-Total Bill No 2. carried to summary					

BILL No 3. CONCRETE WORKS AND REINFORCEMENT.

Item	Item Description	Qty	Unit	Rate	Amount
	Reinforced concrete grade 20/20 (1:2:4) as described to the following				
3.1	150mmthick floor slab mixed with 1kg water proof/50kg bag of ordinary Portland cement.	12	M ³		
3.2	Ditto to 250x250mm square columns	1	M ³		
3.3	Ditto to 250x250mm cross beams to the roof slab.	1.5	M ³		
3.4	Ditto to 100mm thick roof slab	10	M ³		
3.5	Mass concrete (1:2:4) to off take, intake	1	M ³		
	Provide, handle, cut to size and fix the following reinforcement bars as stated in the bending schedule.				
3.6	12mm diameter twisted bars to beams	100	M		
3.7	Ditto to columns	80	M		
3.8	Ditto to roof slab 10mm	960	M		
3.9	Ditto to floor slab 10mm	650	M		
3.10	6mm diameter bars to beams & columns	120	M		
3.11	8mm diameter bars circumferential bars to the walls.	1050	M		

3.12	Allow for binding wires for tying the reinforcements.	50	Kg		
Sub- total Bill No 3 carried to summary					

BILL No 4 WALLING, SHUTTERING & FORMWORK.

Item	Item Description	Qty	Unit	Rate	Amount
	Provide, handle materials, mix mortar as per specification and construct				
4.1	200mm thick block reinforced concrete block wall in 1:1:3 cement: water proof cement: sand mortar.	74	M2		
4.2	Sawn timber formwork to the sides of foundation slab	25	M		
4.3	Sawn timber form work to edges of the roof slab	100	M		
4.4	Sawn formwork to the soffit of the 100mm thick roof slab.	60	M2		
4.5	Sawn timber 3"x2" to the soffit of roof slab	100	M		
4.6	Struts/timber supports of approved size and quality average height 3.0m.	100	No		

4.7	Provide and fix 1000 gauge polythene sheeting to top of timber formwork to the roof slab.	60	M2		
4.8	Provide, handle and fix bondex between the tank wall and the floor slab as per the drawing.	20	Kg		
	FINISHES				
4.9	25mm thick cement: sand(1:3)mixed with water proof cement to the inside walls	62	M2		
4.10	Ditto the floor slab	64	M2		
4.11	Ditto to the external walls	74	M2		
4.12	Ditto to exterior surface of roof slab	62	M2		
4.13	Ditto to the interior surface of roof	64	M2		
4.14	Provide materials and apply 2coats of tryolene(rough cast) using white cement to the external walls of tank	74	M2		
	Sub-total Bill No 4 carried to summary				

BILL No 5 ANCILLIARY AND PIPEWORK

Item	Item Description	Qty	Unit	Rate	Amount
5.1	Fabricate and fix a vertical ladder comprising 25mm mild steel tubing average height 3.0m	2	No		
5.2	Fabricate and fix, 600mmx600mm x3mm thick plate , man hole covers complete with lockable device and high quality padlock	3	No		
5.3	Construct and complete in concrete block walling man hole chambers measuring	2	No		
5.4	Provide and install air vents to the roof slab of the tank comprising 100mm diameter G.I piece, nipple and 2No G.I elbows.	3	No		
	Provide ,handle ,lay and fix the following pipes and fittings as described to:				
	Out let pipe				
5.5	50mm diameter G.I pipe	24	M		
5.6	Ditto 90° bend	1	No		
5.7	Ditto nipple	1	No		
5.8	50x100 G.I Reducing socket	1	No		
5.9	50mm diameter sluice valve	1	No		
	Scour, inlet and over flow pipes				
5.10	50mm diameter G.I pipe	15	M		
5.11	50mm 90° G.I bend	2	No		
5.12	50mm diameter sluice valve	2	No		
5.13	50mm diameter G.I elbow	1	No		
5.14	50mm diameter G.I Union	1	No		
	Sub-Total Bill No 5 carried to summary				

SUMMARY OF BILLS.SCHEDULE 2: PROPOSED 100M3 GROUND MASONRY TANK

BILL	BILL DESCRIPTION	Amount Ksh.
1	PRELIMINARY ITEMS	
2	EXCAVATION AND EARTH WORKS	
3	CONCRETE WORKS AND REINFORCEMENT	
4	WALLING, SHUTTERING AND FORM WORK	
5	ANCILLIARY AND PIPE WORK	
	GRAND TOTAL CARRIED TO SUMMARY X2 SITES	

SCHEDULE 3: PVC DOUBLE LAYER TANK AND ASSOCIATED CANOPY CIVIL WORKS

A. PVC DOUBLE LAYER TANK

Item	Item Description	Qty	Unit	Rate	Amount
1	Supply and install 10,000 litres black double layer cylindrical Tank complete with the inlet and outlet pipes and associated fittings testing and commissioning	2	Nr		
	Total Bill No1.				

B. CANOPY- CIVIL WORKS

Item	Item Description	Qty	Unit	Rate	Amount
2.1	Clear site of bushes, shrubs, grub the roots and dispose of 50m away.	100	M ²		
2.2	Excavate oversite to reduce levels not exceeding 1.5m deep starting from the existing ground level and remove to	20	M ³		
2.3	Extra over excavation for excavating in rock (provision).	1	M ³		

2.4	Provide and apply anti-termite solution preferably Gladiator or any other approved anti-termite solution to the general surfaces of excavations.	Ls	Item		
2.5	Provide, place and compact hard-core of approved quality 300mm thick to make up levels	30	M ³		
2.6	Provide and compact 50mm thick selected murrum blinding to the surfaces of hardcore	6	M ³		
2.8	Provide and place 1000gauge polythene sheet to the surfaces of blinded hardcore.	100	M ²		
Sub-Total Bill No 2.					
Item	Item Description	Qty	Unit	Rate	Amount
	Provide, handle materials, mix mortar as per specification and construct				
3.1	200mm thick block reinforced concrete block wall in 1:1:3 cement: water proof cement: sand mortar.	70	M ²		
3.2	Provide and fix 1000-gauge polythene sheeting to top of timber formwork to the roof slab.	14	M ²		
FINISHES					
3.3	25mm thick cement: sand(1:3)mixed with waterproof cement to the floor slab	100	M ²		
3.4	Provide materials and erect canopy to cover the above plinth with 75x 50x3mm hollow tubes and 35x25x3mm angle line as the trusses and bracers, box profile gauge 30 sheets complete with associated fittings.	105	M ²		
Sub-total Bill No 3					
Item	Item Description	Qty	Unit	Rate	Amount
	Reinforced concrete grade 20/20 (1:2:4) as described to the following				
4.1	Provide reinforced concrete to 150mm thick floor slab	15	M ³		
	Provide, handle, cut to size and fix the following reinforcement bars as stated in the bending schedule.				

4.2	BRC A142 to slab	105	M ²		
4.3	Construct and complete in concrete block walling man hole inspection chambers measuring 1.5mx1.5mx 1.2m high.	2	No		
	Sub- total				
	Sub- total (Bill 2.1-4.3) carried to summary				

SUMMARY OF BILLS: SCHEDULE 3 : SCHEDULE 3: PVC DOUBLE LAYER TANK AND ASSOCIATED CANOPY CIVIL WORKS

BILL	BILL DESCRIPTION	Amount Ksh.
1	PVC DOUBLE LAYER TANK AND ASSOCIATED CANOPY	
	GRAND TOTAL CARRIED TO SUMMARY X 5 SITES	

SCHEDULE 4: PUMP HOUSE, SKID PUMP & RETICULATION

A. PUMP HOUSE

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS).
1	EXCAVATION				
a	Strip topsoil to a maximum of 250 mm depth	m3	8.00		
b	Excavate for the slab in depth 0 ~ 1.5 m	m3	3.00		
c	Excavate trench for foundation in depths of 0- 1.5m	M3			
d	Compaction for final surface under slab	m2	25.00		
	Sub-Total				
2	HARDCORE				
a	200 mm thick hardcore below floor slab	m3	8.00		
b	50 mm thick murrum blinding or similar	m3	2.00		
c	Provide and place 500 gauge polythene sheet damp proof membrane on top of quarry dust	m2	22.00		

	Sub-Total				
3	CONCRETE				
a	50 mm concrete Grade 15 for blinding	m2	22.00		
b	Concrete grade 25 to strip footing	m3	2.50		
c	Ditto to ground floor slab	m3	4.00		
d	Ditto to 4 No plinth slabs	m3	1.00		
e	Ditto to ring beams	m3	1.50		
f	Provide 20 mm screed, cement and sand (1:2) to smooth finish to floor slabs	m2	25.00		
	Sub-Total				
4	FORMWORK				
a	Sawn formwork to sides of the foundation	m2	35.00		
b	Ditto to sides of walls, and entrance slab	m2	5.00		
c	Ditto to beams	m2	12.00		
	Sub-Total				
5	REINFORCEMENT BARS				
	High Tensile to BS4449				
a	12 mm diameter	kg	70.00		
b	8 mm diameter	kg	40.00		
c	A 142 mesh	M ²	30.00		
	Sub-Total				
6	BLOCK WORK				
a	200 mm concrete block-work walling with cement mortar (1:3)	M	15.00		
b	Bitumen damp proof course 200 mm wide	m	15.00		
c	12 mm cement and sand (1:3) rendering on walls to smooth finish	M ²	80.00		
d	200 mm hollow concrete blocks walling with cement mortar (1:3)	M ²	7.00		

e	200 mm hollow concrete blocks walling with cement mortar (1:3)including timber bidding to the double layer mosquito gauze wire netting	M ²	10.00		
	Sub-Total				
7	ROOF				
a	Provide and fix in position 100 x50mm trusses to pump/Generator House	Nr	7.00		
b	Ditto 100x 50mm purlins	m	45.00		
c	Ditto super seven 3m pre-painted Red Box Profile 28G	Nr	16.00		
d	Ditto pre-painted G.S close fitting ridges	m	7.00		
e	Ditto fascia boards size 200x25mm	m	18.00		
f	Ditto, GS gutter	m	3.00		
g	Ditto, GS gutter stop ends	Nr	4.00		
h	Ditto, 100 mm GS DN down-stand pipes for gutter	Nr	4.00		
	Sub-Total				
8	FIXTURES				
a	Double leaf metal door frame 1.5 m wide by 2.2m high and allow for 300m long R16 metal grills	Nr	2.00		
b	Approved padlock, yale or similar	Nr	4.00		
c	1.2 m wide, 2.2 m high T & G door	Nr	2.00		
d	Approved lock, like yale or similar	Nr	2.00		
e	25 mm Vertical joint filler Polystyrene or Bondex or similar	m	7.00		
	Sub-Total				
9	ELECTRICAL FITTINGS				
g	Provide for all the electrical lighting,internal wiring ,external armoured cabling 200 metres long for a 3 phase	LS	1.00		

	connection unit and associated fittings and controls				
	Sub-Total				
ITEM	SUMMARY				
1	Excavation				
2	Hardcore				
3	Formwork				
4	Concrete				
5	Reinforcement Bars				
6	Block Work				
7	Roof				
8	Fixtures				
9	Electrical Fittings				
	Sub- total				
	Sub- total Carried to Summary x 6 SITES				

B. RETICULATION

S.No	Description of Work	Unit	QTY	Rate	Amount
1	Excavate trench in red soil/murram for small pipe not exceeding 1000mm deep and average 600mm deep x600mm wide, Part return in, fill and surplus cart away.	LM	7150		
2	Supply, installation and commissioning the 2/1/2" HDPE pipe network and corresponding fittings to cover approximate running distance of 200m.	LM	7150		
3	Supply, fitting and commissioning of; 20 pieces of 2 1/2" single end hydrant valves 28 pieces of 2 1/2" double-end hydrant valves 34 Landing Valves- Flanged NB: couplings to be of instantaneous types	Lot	1		
4	Supply, fitting and commissioning of; <ul style="list-style-type: none"> 17 large Fire hose box to hold three hosepipes fabricated out of MS sheet of 16 gauge with door, shall be 750mm x 600mm x 250mm fixed with 4mm thick 	Lot	1		

	<p>glass, suitable rubber beading and locking arrangement including one coat of zinc chromate primer and 2 coats of approved 1st quality fire red synthetic enamel paint etc., complete with</p> <ul style="list-style-type: none"> • 80 rolls of 2 1/2" Rubber Delivery Hose (30M)- (type B synthetic hose) - with coupling (female & male) complete with nozzles and corresponding standpipes. • 22 branch pipes to be provided for distribution in the provided cabinets. • Painting and labeling as per the local FIRE prevention regulations and coding • 22pieces of hydrant caps • 25 pcs of 2 1/2" non-return valve • 16 pcs 2 1/2" gate valve <p>NB: couplings to be of instantaneous types</p>				
5	Preparation of Working drawings, as well as As-Built drawings, operation and maintenance manuals for all sites to be submitted in the hardcopy and soft copies CAD format and quantities specified in the tender document.	Item	1		
6	<u>Concrete Works</u>				
a.	Allow for supply and Mass concrete class 10/15 for Gully/drainage crossings.	Cum	10		
b.	Supply materials and construct 1x1x1 meters masonry inspection chamber complete with plaster finishes, covers	NO	30		
c	Supply materials and construct concrete signposts along the reticulation line.	PC	60		
	Sub-Total Cost				

C. SKID PUMP SUPPLY & INSTALLATION

S.No	Description of Work	Unit	QTY	Rate	Amount
1	Supply, installation and testing of pump skid assembly with all associated components per the following specifications.				
	1. KVA 15-20 2. Combustion System Diesel 3 Fuel consumption: at 50% load (L/H)	No	6		

	<p>3.5-4.9 4 Speed 2000-3000 RPM 5 Governor Mechanical (Compliance with ISO8528) 6 Filtration elements Cartridge type air & fuel filters and full lube oil filter with replaceable elements 7 Exhaust system Heavy duty industrial silencer 8 Electrical system 12 V DC system with battery charging alternator, starter motor, lead acid battery, 9 Alternator Screen-protected and drip proof, self- exciting, self- regulating, brush-less alternator;4- poles, star winding connection 10 Control panel Built to combine all the instrument control and the warning lights for both engine & alternator; to incorporate both manual and auto options 11 Banded fuel tank 200 litres 12 Factory tests Test certificate confirming satisfactory factory tests to be provided 13 Warranty 12 months after commissioning Other components specifications a) Electric motor with the following specifications i. Power: 10-15 Kw ii. Voltage: 415 V iii. Frequency: 50 HZ iv. Efficiency: 94.6% v. Current: 130-165 A vi. Speed: 1800-2900 RPM vii. Insulation class F b) Controller: i. Type: Y-delta ii. Rating: 10-15 Kw Tender for Rehabilitation of Fire Hydrant Systems in Eastern Hydro Power Stations and Staff Camps 75 iii. Supply: 415V/3 phase/50Hz c) Pump (motor-Driven) i. Max. Suction: 3.24 Bar ii. Max delivery Press. 10-15 Bar iii. Speed: 1800-2900 RPM iv. Flow: 600-1000 lpm v. Head: 80-100 m vi. Impeller material: bronze vii. Shaft material: 45 steel viii. Shaft sleeve material: cast iron ix. Pump casing material: cast iron x. Seal: Mechanical seal d) Pump (Engine-coupled i. Bar Max (Suction): 3.24 ii. Flow: 600-1000 lpm iii. Speed :1800-2900 RPM iv. Max. Delivery Press.: 10-15 Bar v. Head: 8-1000 m vi. Impeller material: bronze vii. Shaft material: 45 steel viii. Shaft sleeve material: cast iron ix. Pump casing material: cast iron x. Seal: Mechanical seal e) Motor of Jockey pump: i. Power: 5.0-8.0 KW ii. Frequency: 50 HZ iii. Rpm: 1500 iv. IP: 55 v. Insulation class: F f) Jockey pump: i. Speed: 1500 RPM ii. Frequency: 50 HZ iii. Flow: 400-500 lpm iv. Head: 60-70 m v. Max. Del press.: 4-7 Bar vi. Impeller</p>				
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	material: bronze vii. Shaft material: 45 steel viii. Shaft sleeve material: cast iron ix. Pump casing material: cast iron x. Seal: Mechanical seal				
	Sub-Total Cost				

SUMMARY OF BILLS: SCHEDULE 4: PUMP HOUSE, SKID PUMP & RETICULATION

BILL	BILL DESCRIPTION	Amount Ksh.
A	PUMP HOUSE	
B	RETICULATION	
C	SKID PUMP SUPPLY & INSTALLATION	
	GRAND TOTAL CARRIED TO SUMMARY	

GRAND SUMMARY TAKEN TO TENDER

SCHEDULES	Description	Amount
1	PRELIMINARY ITEMS	
2	100M ³ MASONRY TANKS	
3	PVC DOUBLE LAYER TANK AND ASSOCIATED CANOPY CIVIL WORKS	
4	PUMP HOUSE, SKID PUMP & RETICULATION	
	Add 16% applicable taxes- VAT	
	Grand Total taken to tender form	

AMOUNT IN WORDS (KSHS)

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Tenderer's name (Company) _____

Signature & Rubber-stamp _____

Date _____

SUPPLIER ACKNOWLEDGEMENT OF ADDENDUM NO. 1

We, the undersigned hereby certify that the addendum is an integral part of the document and the alterations set out in the addendum has been incorporated in the tender proposal.

Signed.....

Tenderer.....

Date.....